

We claim:

1. In a fuel element of a nuclear reactor cooled by a coolant flow of light water, a spacer assembly for a plurality of fuel rods, comprising:

a spacer formed with mesh openings each for a fuel rod projecting therethrough and defining a given spacer plane;

a plurality of holding elements disposed in each of said mesh openings and formed to laterally support said fuel rod and to limit and damp a relative mobility of the fuel rod with respect to said spacer and for allowing the fuel rod to be set predominantly into tilting oscillations in the spacer plane by the coolant flow; and

said holding elements being configured to exert a torque of $M \leq 10 \text{ N} \cdot \text{mm}$ on a fuel rod at a tilting angle $\varphi = 0.1^\circ$, having an axis of rotation running perpendicular to the fuel rod in the spacer plane.

2. The spacer according to claim 1, wherein said holding elements in at least one of said mesh openings are formed with a plurality of elongate bearing surfaces for bearing against the fuel rod, said elongate bearing surfaces having a longitudinal extent of at least 1 mm, and wherein, in an unirradiated state of said spacer, a highest bearing point of

the fuel rod in the respective said mesh opening lies at most 10 mm above a lowest bearing point of the fuel rod in said mesh opening.

3. The spacer assembly according to claim 2, wherein the highest bearing point lies at most 5 mm above the lowest bearing point of the fuel rod in said mesh opening.

4. The spacer assembly according to claim 2, wherein the highest bearing point lies at most 3 mm above the lowest bearing point of the fuel rod in said mesh opening.

5. The spacer assembly according to claim 1, wherein said spacer is formed with inner mesh openings and said holding elements are disposed at least in said inner mesh openings.

6. The spacer assembly according to claim 1, wherein said holding elements are disposed in all said mesh openings of said spacer.

7. The spacer assembly according to claim 2, which further comprises, in each mesh opening including holding elements with said bearing surfaces, stops for limiting a lateral deviation of the fuel rod with respect to an at-rest position thereof to a range from 0.1 to 0.5 mm, said stops being formed

in a plane above said bearing surfaces and a plane below said bearing surfaces.

8. The spacer assembly according to claim 2, which further comprises, in each mesh opening including holding elements with said bearing surfaces, stops for limiting a lateral deviation of the fuel rod with respect to an at-rest position thereof to substantially at most 0.3 mm, said stops being formed in a plane above said bearing surfaces and a plane below said bearing surfaces.

9. The spacer assembly according to claim 7, wherein a respective said stop is disposed above and below each said bearing surface.

10. The spacer assembly according to claim 1, wherein said holding elements in at least one of said mesh openings are formed with a plurality of elongate bearing surfaces for bearing against the fuel rod, and the fuel rod is supported against said holding elements of said mesh opening at fewer than eight elongate bearing surfaces.

11. The spacer assembly according to claim 2, wherein the fuel rod is supported against said holding elements of said mesh opening at fewer than eight elongate bearing surfaces.

12. The spacer assembly according to claim 2, wherein said bearing surfaces are oriented parallel with respect to the fuel rod.

13. The spacer assembly according to claim 2, wherein said bearing surfaces are distributed equidistantly over a periphery of the fuel rod.

14. The spacer assembly according to claim 2, wherein said bearing surfaces are distributed in pairs and equidistantly over a periphery of the fuel rod.

15. A fuel element for a nuclear reactor cooled by a flow of light water, which comprises: a foot, a head, and at least one spacer assembly according to claim 1 between said foot and said head.

16. The fuel element according to claim 15, wherein said spacer assembly according to claim 1 is a bottom spacer of a plurality of spacers between said foot and said head.